Claims

1. An adhesive film for semiconductor use, the adhesive film being used in a method in which, after the adhesive film for semiconductor use is laminated to one side of a metal sheet, the metal sheet is processed to give a wiring circuit, a semiconductor die is mounted and molded, and the adhesive film is then peeled off, the adhesive film comprising a support film and a resin layer A formed on one side or both sides of the support film, the 90 degree peel strength between the resin layer A and the metal sheet prior to the processing of the metal sheet laminated with the adhesive film for semiconductor use to give the wiring circuit being 20 N/m or greater at 25°C, and the 90 degree peel strengths, after molding with a molding compound the wiring circuit laminated with the adhesive film for semiconductor use, between the resin layer A and the wiring circuit and between the resin layer A and the molding compound both being 1000 N/m or less at at least one point in the temperature range of 0°C to 250°C.

2. The adhesive film for semiconductor use according to Claim 1, wherein the 90 degree peel strengths between the resin layer A and the wiring circuit and between the resin layer A and the molding compound after molding with the molding compound are both 1000 N/m or less at at least one point in the temperature range of 100°C to 250°C.

3. The adhesive film for semiconductor use according to Claim 1, wherein the 90 degree peel strengths between the resin layer A and the wiring circuit and between the resin layer A and the molding compound are both 1000 N/m or

less at a temperature at which, after molding with the molding compound, the adhesive film for semiconductor use is peeled off from the wiring circuit and the molding compound.

4. The adhesive film for semiconductor use according to Claim 1, wherein the resin layer A has a glass transition temperature of 100°C to 300°C.

5. The adhesive film for semiconductor use according to Claim 1, wherein the temperature at which the resin layer A shows a 5 wt % loss is 300°C or greater.

6. The adhesive film for semiconductor use according to Claim 1, wherein the resin layer A has a elastic modulus at 230°C of 1 MPa or greater.

7. The adhesive film for semiconductor use according to Claim 1, wherein the resin layer A comprises a thermoplastic resin having an amide group, an ester group, an imide group, an ether group, or a sulfone group.

8. The adhesive film for semiconductor use according to Claim 1, wherein the resin layer A comprises a thermoplastic resin having an amide group, an ester group, an imide group, or an ether group.

9. The adhesive film for semiconductor use according to Claim 1, wherein the material of the support film is selected from the group consisting of an aromatic polyimide, an aromatic polyamide, an aromatic polyamideimide, an

aromatic polysulfone, an aromatic polyethersulfone, a polyphenylene sulfide, an aromatic polyetherketone, a polyarylate, an aromatic polyetheretherketone, and a polyethylene naphthalate.

10. The adhesive film for semiconductor use according to Claim 1, wherein the ratio (A/B) of the thickness (A) of the resin layer A to the thickness (B) of the support film is 0.5 or less.

11. The adhesive film for semiconductor use according to Claim 1, wherein the resin layer A, which has adhesion, is formed on one side of the support film, and a resin layer B having no adhesion and a elastic modulus at 230°C of 10 MPa or greater is formed on the opposite side thereof.

12. The adhesive film for semiconductor use according to Claim 1, wherein the thickness thereof is 200 μm or less.

13. A metal sheet laminated with the adhesive film having the adhesive film for semiconductor use according to any one of Claims 1 to 12 laminated thereto.

14. A wiring circuit laminated with the adhesive film obtained by processing the metal sheet laminated with the adhesive film according to Claim 13 to give a wiring circuit.

15. The wiring circuit laminated with the adhesive film according to Claim 14,

wherein the wiring circuit is laminated so that one side thereof is in contact with the resin layer A of the adhesive film for semiconductor use.

16. A semiconductor device laminated with the adhesive film employing the adhesive film for semiconductor use according to any one of Claims 1 to 12.

17. The semiconductor device laminated with the adhesive film according to Claim 16, wherein it comprises the adhesive film for semiconductor use, the wiring circuit that is laminated so that one side thereof is in contact with the resin layer A of the adhesive film for semiconductor use, a semiconductor die electrically connected to an exposed surface of the wiring circuit, and the molding compound that molds the semiconductor die.

18. A semiconductor device obtained by peeling off the adhesive film for semiconductor use from the semiconductor device according to Claim 17.

19. A method for producing a semiconductor device, the method comprising a step of laminating to one side of a metal sheet the adhesive film for semiconductor use according to any one of Claims 1 to 12, a step of processing the metal sheet to give a wiring circuit, a step of electrically connecting a semiconductor die onto an exposed surface of the wiring circuit, a step of molding the semiconductor die and the exposed surface of the wiring circuit with a molding compound, and a step of peeling off the adhesive film for semiconductor use from the wiring circuit and the molding compound.

20. The method according to Claim 19, wherein the wiring circuit comprises a plurality of patterns each having a die pad and an inner lead, and the method comprises, after the molding step or after the step of peeling off the adhesive film for semiconductor use, a step of dividing the molded wiring circuit laminated with the adhesive film to give a plurality of semiconductor devices each having one semiconductor die.